

Process for applying a protective coating on the surface of workpieces; alloy and solder used therefor

Patent number: EP1029629
Publication date: 2000-08-23
Inventor: BALZEREIT JUERGEN DIPL-ING (DE); DEISSER TODD ALEXANDER DIPL-IN (DE); RASS INO JAKOB DR-ING (DE); LUGSCHEIDER ERICH PROF DR (DE)
Applicant: EUROMAT GMBH (DE)
Classification:
- **international:** B23K35/02; C23C24/10; B23K35/30
- **european:** B23K35/02D5; C23C26/02
Application number: EP20000102265 20000215
Priority number(s): DE20001000988 20000113; DE19991006765 19990217

Also published as:

EP1029629 (A3)
DE10000988 (A1)

Cited documents:

EP0162555
US3916506
DE2115358
US5561827
US4325754
more >>

Report a data error here

Abstract of EP1029629

Workpiece protective coating or repair, by thermal bonding of a pressed strip of metal powder, binder and pressing aid, is new. A protective layer is produced on a workpiece by (a) mixing 3-12 wt.% binder and 1-10 wt.% pressing aid into a metal powder having a single particle size range or a mixture of size ranges with a size distribution of 3-200 μm ; (b) pressing the mixture to strip at 10-150 bars pressure; and (c) bonding the strip onto a metallic component by heat treatment. Independent claims are also included for the following: (i) protective layer production on a workpiece by shaping a solder powder paste or strip to the dimensions of a worn or damaged workpiece surface region, placing the paste or strip in the worn or damaged region and post-treating; (ii) an alloy, having the composition (by wt.) 12-20% Cr, 11-14% Ni, up to 5% Mo and balance Fe, for use in the above process; (iii) a solder material for coating and for producing moldings used in a coating in the above process, comprising copper or a copper alloy containing additions of phosphorus, zinc, silver, germanium, palladium and optionally other elements; and (iv) a solder material for coating and for producing moldings used in a coating in the above process, comprising a nickel solder powder of composition (by wt.) up to 30 (especially 2.5-3.5)% Cr, 0.9-4 (especially 3.0-4.0)% B, 0.6-4.25 (especially 3.7-4.8)% Si, 0.2-5.0 (especially 2.5-3.5)% Fe, 0.05-1% C and balance Ni. Preferred Features: The powder has particle size ranges of 3-30 μm , 30-75 μm and/or 75-200 μm and/or has a particle size distribution of 10-150 μm , preferably with a maximum particle size of 120 μm . The mixture is pressed by rolling at below 150 degrees C and 20-100 bars pressure. The strip is bonded to the workpiece surface by welding, arc or laser beam remelting or furnace post-treatment. A worn or damaged workpiece surface region may be repaired by taking an impression of the region using a molding material to form a negative mould which is used to shape a curable paste, the paste being heat treated, after placing on the region, using an induction coil, a laser beam or a furnace, especially an electric furnace, under air, protective gas or vacuum. The solder materials (iii) and (iv) contain 20-60 vol.% hard material powder such as carbides, borides, nitrides, silicides, oxides and/or diamond, especially 50 wt.% fine carbides (WC) of less than 30 μm particle size.

Data supplied from the esp@cenet database - Worldwide

Express Mail Serial No.:
EV 320 191 815 US